Remarks

I. Claim Objections

The Office Action objects to claims 8, 14 and 15, stating in part:

> Claims 8, 14 and 15 are objected to because of the following informalities: Claim 14 refers to "the fast-path processing of (c)" and "slow-path processing in (e)." Claim 15 refers to "prior to the receiving of (b)." These appear to be references to indented portions of claim 8.

Applicants have amended claims 14 and 15 to make clear the "references to indented portions of claim 8" noted in the Office Action.

II. Claim Rejections

A. 35 U.S.C. §102

The Office Action rejects claims 1, 2 and 5 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 5,682,534 to Kapoor et al. (hereinafter "Kapoor"). Regarding claim 1, the Office Action states:

> As per claim 1, Kapoor discloses a computer that receives a response to a solicited read command (e.g. remote procedure call), the solicited read command being of a session layer protocol (e.g. Kapoor, col. 1, lines 41-54; col. 2, lines 33-36; col. 6, lines 10-19), the computer comprising:
>
> a host computer having a protocol stack and a destination memory, the protocol stack including a session layer portion, the session layer portion being for processing the session layer protocol (e.g. Kapoor, col. 1, lines 41-54; col. 2, lines 33-36; col. 6, lines 10-19); and
>
> a network interface device coupled to the host computer, the network interface device performing fast-path processing on the response such that a data portion of the response is placed into the destination memory without the protocol stack of the host computer performing any network layer processing or any transport layer processing on the response (e.g. Kapoor, col. 2, lines 33-49; col. 6, lines 7-19; Fig. 2B).

Applicants have amended claim 1 to avoid any potential confusion between the "computer" of the claim preamble and the "host computer" of the claim limitations, by replacing the "computer" of the claim preamble with "An apparatus."

Regarding original claim 1, applicants respectfully assert that it is not at all clear that Kapoor discloses "a network interface device coupled to the host computer," in

contrast to claim 1. Instead, Kapoor states: "VISA, our Virtual Internet SCSI Adapter ...is the OS mechanism for supporting access to storage peripherals via the network." Kapoor, page 72, column 1, lines 27-29. For at least this reason, applicants respectfully assert that claim 1 and all the claims that depend from claim 1 are not anticipated by Kapoor.

Applicants also note that Kapoor is directed to "managing remote procedure calls (RPC's) ***between client and server processes running on the same host computer*** in a network." Kapoor, column 2, lines 34-36, emphasis added. Similarly, Kapoor teaches: "It is another object of the invention to enable a network RPC mechanism to ***distinguish whether client and server processes are running on the same host machine*** and, ***if so, to bypass the network and transport layers*** using an alternate protocol sequence that exploits local interprocess communication (IPC) facilities." Kapoor, column 2, lines 37-43, emphasis added. Likewise, Kapoor teaches: "It is a more specific object of the invention to ***recognize when client and server DCE processes exist on the same host to thereby use a local IPC mechanism, instead of a network layer (IP) or transport layer (TP) path***, to implement a remote procedure call." Kapoor, column 2, lines 44-48, emphasis added. In contrast to these teachings of Kapoor, claim 1 recites "receiving from outside the apparatus a response to a solicited read command." For at least this reason, applicants respectfully assert that claim 1 and all the claims that depend from claim 1 are not anticipated by Kapoor.

B. 35 U.S.C. §103

The Office Action rejects claims 3, 22, 24, 27, 30 and 31 under 35 U.S.C. §103(a) as being unpatentable over Kapoor in view of an article by Van Meter et al. entitled "VISA: Netstation's Virtual Internet SCSI Adapter" (hereinafter "Van Meter"). Regarding claim 3, the Office Action states:

> As per claim 3, Kapoor discloses the computer of claim 1, but fails to teach wherein the session layer protocol is ISCSI.
>
> However, in a similar art, Van Meter teaches the use of an Internet SCSI adapter, which uses a TCP interface to attach to a network system (e.g. Van Meter, Abstract, Pg. 71).
>
> It would have been obvious to one skilled in the art at the time the invention was made to combine Van Meter with Kapoor because of the

> advantages of using an Internet SCSI protocol to connect to a device over a network. Van Meter states this type of connection is advantageous because network attached devices are shared more easily and reduce the server's workload. It allows clients to directly access the devices, without going through a server, which reduces latency and demands on its buses, memory and processors (e.g. Van Meter, Section 3.1 – Motivation, Pg. 72, 73). These advantages are beneficial in any computer network system.

As noted above, Kapoor does not teach some of the limitations of claim 1, from which claim 3 depends, and these limitations are also not taught in Van Meter. For example, Van Meter, like Kapoor, does not appear to disclose "a network interface device coupled to the host computer." Moreover, Van Meter, like Kapoor, does not appear to disclose "receiving from outside the apparatus a response to a solicited read command." For at least these reasons, applicants respectfully assert that claim 3 is not obvious over Kapoor in view of Van Meter.

Regarding claim 22, the Office Action states:

> As per claim 22, Kapoor teaches a computer adapted for receiving a response to a read request command (e.g. Kapoor, col. 1, lines 41-54), the computer comprising:
>
> a host computer having a protocol stack and a destination memory (e.g. Kapoor, col. 1, lines 41-54; col. 2, lines 33-36; col. 6, lines 10-19); and
>
> a network interface device coupled to the host computer, the network interface device receiving a first portion of the response to the ISCSI read request command, the first portion being processed such that a data portion of the first portion is placed into the destination memory on the host computer with the protocol stack of the host computer doing substantially no network layer or transport layer processing (e.g. Kapoor, col. 2, lines 33-49; col. 6, lines 7-19; Fig. 2B), the network interface device receiving a second portion of the response to the ISCSI read request command, the protocol stack of the host computer doing network layer and transport layer processing on the second portion (e.g. Kapoor, col. 5, lines 36-45).
>
> Kapoor fails to teach the computer receiving a response to an ISCSI read request command; receiving a first portion of the response to the ISCSI read request command and receiving a second portion of the response to the ISCSI read request command.
>
> However, in a similar art, Van Meter teaches the use of an Internet SCSI adapter, which uses a TCP interface to attach to a network system (e.g. Van Meter, Abstract, Pg. 71).

> It would have been obvious to one skilled in the art at the time the invention was made to combine Van Meter with Kapoor for similar reasons as stated above in regards to claim 3.

Applicants respectfully disagree with the Office Action assertions that Kapoor teaches "a network interface device coupled to the host computer," as recited in claim 22. Applicants respectfully assert that Van Meter, like Kapoor, does not appear to disclose this limitation, in contrast to claim 22. Applicants note that the Office Action does not assert, and neither Van Meter nor Kapoor discloses "the network interface device receiving a first portion of the response to the ISCSI read request command, the first portion being processed such that ***a data portion of the first portion is placed into the destination memory on the host computer with the protocol stack of the host computer doing substantially no network layer or transport layer processing***," and "the network interface device receiving a second portion of the response to the ISCSI read request command, ***the protocol stack of the host computer doing network layer and transport layer processing on the second portion***," in contrast to claim 22.

For at least these reasons, applicants respectfully assert that claim 22 and all the claims that depend from claim 22 are not obvious over Kapoor in view of Van Meter.

Regarding claim 24, the Office Action states:

> As per claim 24, Kapoor and Van Meter teach the computer of claim 22, wherein the ISCSI read request command is passed from the host computer to the network interface device, the ISCSI read request command being accompanied by an indication of where the destination memory is located on the host computer. (e.g. Kapoor, col. 10, lines 42-60; Van Meter, Abstract, page 71).

Applicants respectfully disagree with the Office Action assertion that either Kapoor or Van Meter teaches "the computer of claim 22, wherein the ISCSI read request command is passed from the host computer to the network interface device, the ISCSI read request command being accompanied by an indication of where the destination memory is located on the host computer." Kapoor does not teach this in column 10, lines 42-60, and Van Meter does not teach this in its Abstract. As noted above, neither Kapoor nor Van Meter teaches "a network interface device coupled to the host computer," and so it is difficult to imagine them teaching "wherein the ISCSI read request command is passed from the host computer to the network interface device." For at least these

reasons, applicants respectfully assert that claim 24 is not obvious over Kapoor in view of Van Meter.

Regarding claim 27, the Office Action states:

> As per claim 27, Kapoor and Van Meter teach the computer of claim 22, wherein the response to the ISCSI read request command is received onto the computer via a single cable, the computer also receiving other network communications over the single cable, the other network communications not being ISCSI communications. (e.g. Van Meter, Section 2, Netstation, page 71 and 72).

Applicants respectfully disagree with the Office Action assertion that either Kapoor or Van Meter teaches "the computer of claim 22, wherein the ISCSI read request command is passed from the host computer to the network interface device, the ISCSI read request command being accompanied by an indication of where the destination memory is located on the host computer." Applicants respectfully assert that Van Meter does not teach this in its section entitled Netstation, on pages 71 and 72. For at least this reason, applicants respectfully assert that claim 27 is not obvious over Kapoor in view of Van Meter.

Regarding claim 30, the Office Action states:

> As per claim 30, Kapoor and Van Meter teach the computer of claim 22, wherein an enclosure contains both the host computer and the network interface device. (e.g. Van Meter, Section 2, Netstation, page 71 and 72).

Applicants respectfully disagree with the Office Action assertion that Van Meter teaches "the computer of claim 22, wherein an enclosure contains both the host computer and the network interface device." Applicants respectfully assert that Van Meter does not teach this in its section entitled Netstation, on pages 71 and 72. As noted above, neither Kapoor nor Van Meter teaches "a network interface device coupled to the host computer," and so it is difficult to imagine them teaching "wherein an enclosure contains both the host computer and the network interface device." For at least this reason, applicants respectfully assert that claim 30 is not obvious over Kapoor in view of Van Meter.

Regarding claim 31, the Office Action states:

As per claim 31, Kapoor teaches a computer adapted for receiving a response to an ISCSI read request command (e.g. Kapoor, col. 1, lines 41-54), the computer comprising:

a host computer having a protocol stack and a destination memory (e.g. Kapoor, col. 1, lines 41-54; col. 2, lines 33-36; col. 6, lines 10-19); and

means, coupled to the host computer, for fast-path processing a portion of the response to the ISCSI read request command, the portion including data, the portion being fast-path processed such that the data is placed into the destination memory on the host computer without the protocol stack of the host computer doing significant network layer or significant transport layer processing (e.g. Kapoor, col. 2, lines 33-49; col. 6, lines 7-19; Fig. 2B), the means also being for receiving a subsequent portion of the response to the ISCSI read request command and for slow-path processing the subsequent portion such that the protocol stack of the host computer does network layer and transport layer processing on the subsequent portion (e.g. Kapoor, col. 5, lines 36-45).

Kapoor fails to teach a computer adapted for receiving a response to an ISCSI read request command; means, ***coupled to the host computer,*** for fast-path processing a portion of the response to the ISCSI read request command; means for slow-path processing the subsequent portion of the response to an ISCSI read request command.

Applicants respectfully disagree with the Office Action assertion that "Kapoor teaches a computer adapted for receiving a response to an ISCSI read request command (e.g. Kapoor, col. 1, lines 41-54)." Applicants also respectfully disagree with the Office Action assertion that "Kapoor, col. 2, lines 33-49; col. 6, lines 7-19; or Fig. 2B" teaches "means, coupled to the host computer, for fast-path processing a portion of the response to the ISCSI read request command, the portion including data, the portion being fast-path processed such that the data is placed into the destination memory on the host computer without the protocol stack of the host computer doing significant network layer or significant transport layer processing." Applicants further respectfully assert that neither Kapoor nor Van Meter teaches "means, coupled to the host computer, for receiving from outside the apparatus a response to an ISCSI read request command and for fast-path processing a portion of the response to the ISCSI read request command, the portion including data, the portion being fast-path processed such that the data is placed into the destination memory on the host computer without the protocol stack of the host computer doing significant network layer or significant transport layer processing." For

at least these reasons, applicants respectfully assert that claim 31 is not obvious over Kapoor in view of Van Meter.

The Office Action rejects claim 4 under 35 U.S.C. §103(a) as being unpatentable over Kapoor in view of an article by Jones et al. entitled "Methodology for Serializing Asynchronus Network Requests over Multiple Paths" (hereinafter "Jones"). Regarding claim 4, the Office Action states:

> As per claim 4, Kapoor discloses the computer of claim 1, but fails to teach wherein the session layer protocol is SMB.
>
> However, in a similar art, Jones teaches the use of the SMB protocol in establishing NetBIOS session level connections between clients and servers (e.g. Jones, Page 151, Paragraphs 4 and 5).
>
> It would have been obvious to one skilled in the art at the time the invention was made to combine Jones with Kapoor because of the advantages of using the SMB protocol for network connections. Jones states the use of the SMB protocol is advantageous because the "large block" or "raw" protocols it uses provide for more efficient request transfer between client and server by increasing the amount of data that can be transferred during each operation (e.g. Jones, Page 152, Paragraph 1). Jones also states another advantage of the SMB protocol being that the delivery of all data sent is guaranteed, no data will be lost or skipped without notification (e.g. Jones, Page 152, Paragraph 5). These are beneficial in any computer network system.

As noted above, Kapoor does not teach some of the limitations of claim 1, from which claim 4 depends, and these limitations are also not taught in Jones. For example, Jones, like Kapoor, does not appear to disclose "a network interface device coupled to the host computer." Moreover, Jones, like Kapoor, does not appear to disclose "receiving from outside the apparatus a response to a solicited read command." For at least these reasons, applicants respectfully assert that claim 4 is not obvious over Kapoor in view of Jones.

The Office Action rejects claims 6 and 7 under 35 U.S.C. §103(a) as being unpatentable over Kapoor in view of U.S. Patent No 5,418,912 to Christenson (hereinafter "Christenson"). Regarding claim 6, the Office Action states:

> As per claim 6, Kapoor discloses the computer of claim 1, but fails to teach wherein the response comprises a first packet and a second packet, the first packet including first data, and second packet including second data, wherein said data portion that is placed into the destination includes both the first data and the second data, and wherein the first data

and the second data are placed into the destination together in a substantially contiguous manner.

However, in a similar art, Christenson teaches a session-level packet processing system, wherein a response is composed of multiple packets, each containing data, the data being placed sequentially into a destination via the use of a FIFO queue and buffer (e.g. Christenson, col. 6, lines 20-52).

It would have been obvious to one skilled in the art at the time the invention was made to combine Christenson with Kapoor because of the advantages of sending requests and commands over a network in the form of multiple packets containing data. Christenson states that controlling packet transmission in a network can optimize network resources and result in a fair amount of access by each client session (e.g. Christenson, col. 3, lines 7-20). The optimization of network resources can greatly improve the speed and efficiency of a network, while allowing fair access provides each client a relatively equal amount of that speed and efficiency, which is beneficial in any computer network system.

As noted above, Kapoor does not teach some of the limitations of claim 1, from which claim 6 depends, and these limitations are also not taught in Christenson. For example, Christenson, like Kapoor, does not appear to disclose "a network interface device coupled to the host computer." Moreover, Christenson, like Kapoor, does not appear to disclose "receiving from outside the apparatus a response to a solicited read command." For at least these reasons, applicants respectfully assert that claim 6 is not obvious over Kapoor in view of Jones.

Regarding claim 7, the Office Action states:

As per claim 7, Kapoor discloses the computer of claim 1, but fails to teach wherein the response comprises a first packet and a second packet, the first packet including first data, and second packet including second data, wherein said data portion that is placed into the destination includes the first data and the second data, the first data being placed into the destination before the second packet is received onto the network interface device.

However, in a similar art, Christenson teaches a session-level packet processing system, wherein a response is composed of multiple packets, each containing data, the data being placed sequentially into a destination via the use of a FIFO queue and buffer, which will place the first data prior to [lacing the second data (e.g. Christenson, col. 6, lines 20-52).

It would have been obvious to one skilled in the art at the time the invention was made to combine Christenson with Kapoor for reasons similar to those stated above in regards to claim 6.

As noted above, Kapoor does not teach some of the limitations of claim 1, from which claim 7 depends, and these limitations are also not taught in Christenson. For example, Christenson, like Kapoor, does not appear to disclose "a network interface device coupled to the host computer." Moreover, Christenson, like Kapoor, does not appear to disclose "receiving from outside the apparatus a response to a solicited read command." Applicants also note that the Office Action does not assert, and neither Christenson nor Kapoor discloses "the first data being placed into the destination before the second packet is received onto the network interface device," in contrast to claim 7. For at least these reasons, applicants respectfully assert that claim 7 is not obvious over Kapoor in view of Jones.

The Office Action rejects claims 8 and 11-15 under 35 U.S.C. §103(a) as being unpatentable over Kapoor in view of U.S. Patent No 5,535,375 to Eshel et al. (hereinafter "Eshel"). Regarding claim 8, the Office Action states:

> As per claim 8, Kapoor teaches a method, comprising:
>
> (a) issuing a read request to a network storage device, the read request passing through a network to the network storage device (e.g. Kapoor, col. 1, lines 41-54; col. 2, lines 33-36; col. 6, lines 10-19);
>
> (b) receiving on a network interface device a packet from the network storage device in response to the read request, the packet including data, the network interface device being coupled to a host computer by a bus, the host computer having a protocol stack for carrying out network layer and transport layer processing (e.g. Kapoor, col. 1, lines 41-54; col. 2, lines 33-36; col. 6, lines 10-19);
>
> (c) performing fast-path processing on the packet such that the data is placed into a destination memory without the protocol stack of the host computer doing any network layer processing on the packet and without the protocol stack of the host computer doing any transport layer processing on the packet (e.g. Kapoor, col. 2, lines 33-49; col. 6, lines 7-19; Fig. 2B);
>
> (d) receiving on the network interface device a subsequent packet from the network storage device in response to the read request, the subsequent packet including subsequent data (e.g. Kapoor, col. 5, lines 36-45); and
>
> (e) performing slow-path processing on the subsequent packet such that the protocol stack of the host computer does network layer processing and transport layer processing on the subsequent packet (e.g. Kapoor, col. 5, lines 36-45).

> Kapoor fails to teach issuing a read request to a network storage device, the read request passing through a network to the network storage device; receiving on a network interface device a packet from the network storage device in response to the read request; receiving on the network interface device a subsequent packet from the network storage device in response to the read request.
>
> However, in a similar art, Eshel teaches the use of network attached storage devices that are able to send and receive read and write commands over a network (e.g. Eshel, col. 4, lines 26-28; col. 8, lines 36-42).
>
> It would have been obvious to one skilled in the art at the time the invention was made to combine Eshel with Kapoor because of the advantages of using a network storage device in a computer network system. It is well known in the art to use a network to access, control and manage a storage device. Network accessible storage is a feature of nearly every network server computer. Allowing users to access network attached storage devices is advantageous since data can be stored in on ecentral location, which can be easily accessed by all network users. Network storage can be used for archiving and backup purposes, greatly increasing the reliability and availability of data on a computer network, which is beneficial in any computer network system.

Applicants respectfully disagre with the Office Action assertion that Kapoor teaches, in column 1, lines 41-54; column 2, lines 33-36; column 6, lines 10-19 or elsewhere, "issuing a read request to a network storage device, the read request passing through a network to the network storage device." As noted above, Kapoor is directed to "managing remote procedure calls (RPC's) ***between client and server processes running on the same host computer*** in a network." Kapoor, column 2, lines 34-36, emphasis added.

Similarly, applicants respectfully disagre with the Office Action assertion that Kapoor teaches, in column 2, lines 33-49; column 6, lines 7-19; Fig. 2B or elsewhere, "receiving on the network interface device a subsequent packet from the network storage device in response to the read request, the subsequent packet including subsequent data." Instead, Kapoor teaches "It is another object of the invention to enable a network RPC mechanism to ***distinguish whether client and server processes are running on the same host machine*** and, ***if so, to bypass the network and transport layers*** using an alternate protocol sequence that exploits local interprocess communication (IPC) facilities."

Kapoor, column 2, lines 37-43, emphasis added. Likewise, Kapoor teaches: "It is a more specific object of the invention to ***recognize when client and server DCE processes exist on the same host to thereby use a local IPC mechanism, instead of a network layer (IP) or transport layer (TP) path***, to implement a remote procedure call." Kapoor, column 2, lines 44-48, emphasis added.

Moreover, should Kapoor be combined with Eshel as proposed in the Office Action, the ability of the resulting device to "bypass the network and transport layers" would be limited to an implementation in which "client and server processes are running on the same host machine." For at least these reasons, applicants respectfully assert that claim 8 is not obvious over Kapoor in view of Eshel.

Regarding claim 11, the Office Action states:

> As per claim 11, Kapoor and Eshel teach the method of claim 8, wherein the destination memory is a part of the host computer (Kapoor, col. 6, lines 10-19).

Applicants respectfully assert that the combination of Kapoor and Eshel proposed in the Office Action does not teach the method of claim 8, wherein the destination memory is a part of the host computer. As noted above, the ability of the device proposed in the Office Action to "bypass the network and transport layers" would be limited to an implementation in which "client and server processes are running on the same host machine." For at least these reasons, applicants respectfully assert that claim 11 is not obvious over Kapoor in view of Eshel.

Regarding claim 12, the Office Action states:

> As per claim 12, Kapoor and Eshel teach the method of claim 8, wherein the destination memory is part of a second host computer, the second host computer being coupled to a second network interface device, the data and the subsequent data being sent from the network interface device to the second network interface device via a network connection (e.g. Eshel, col. 3, lines 10-15; col. 4, lines 18-23).

Applicants respectfully assert that the combination of Kapoor and Eshel proposed in the Office Action does not teach the method of claim 8, wherein the destination memory is part of a second host computer, the second host computer being coupled to a second network interface device, the data and the subsequent data being sent from the network interface device to the second network interface device via a network

connection. As noted above, the ability of the device proposed in the Office Action to "bypass the network and transport layers" would be limited to an implementation in which "client and server processes are running on the same host machine." For at least these reasons, applicants respectfully assert that claim 12 is not obvious over Kapoor in view of Eshel.

Regarding claim 13, the Office Action states:

> As per claim 13, Kapoor and Eshel teach the method of claim 8, wherein the network storage device comprises a controller and a disk drive (e.g. Eshel, col. 4, lines 26-28; col. 8, lines 36-42).

Applicants respectfully assert that the combination of Kapoor and Eshel proposed in the Office Action does not teach the method of claim 8, wherein the network storage device comprises a controller and a disk drive. As noted above, the ability of the device proposed in the Office Action to "bypass the network and transport layers" would be limited to an implementation in which "client and server processes are running on the same host machine." For at least these reasons, applicants respectfully assert that claim 13 is not obvious over Kapoor in view of Eshel.

Regarding claim 14, the Office Action states:

> As per claim 14, Kapoor and Eshel teach the method of claim 8, wherein the packet and the subsequent packet are associated with a connection context (e.g. Kapoor, col. 6, lines 28-36), the method further comprising:
>
> flushing the connection context from the network interface device to the host computer after the performing fast-path processing of (c) but prior to the performing of slow-path processing in (e).
>
> (e.g. Kapoor, col. 7, lines 66-67; col. 8, lines 42-60).

Applicants respectfully assert that the combination of Kapoor and Eshel proposed in the Office Action does not teach the method of claim 8, further comprising: flushing the connection context from the network interface device to the host computer after the performing fast-path processing of (c) but prior to the performing of slow-path processing in (e). In contrast, Kapoor states, in column 6, lines 28-38:

> Because the ncacn.sub.-- unix.sub.-- stream protocol sequence is for use with DCE applications on the same host machine, these bindings do not contain a network address. Also, the endpoint for a ncacn.sub.-- unix.sub.-- stream binding handle is represented as a full pathname to a UNIX socket file. A unique socket file is used for each association

> established between a client and server process. By default, these socket files are opened in a directory /var/dce/rpc/socket with the file name prefixed by DCE.sub.-- CN. Also, by default, the name for each socket file is an object UUID (or universal unique identifier), which insures the uniqueness of each filename. The UUID's are essentially long random numbers created by a UUID generator routine.

Applicants respectfully assert that this cited passage in Kapoor says nothing about "flushing the connection context from the network interface device to the host computer." Applicants also respectfully assert that this cited passage in Kapoor says nothing about "flushing ... after the performing fast-path processing of (c) but prior to the performing of slow-path processing in (e)." For at least these reasons, applicants respectfully assert that claim 14 is not obvious over Kapoor in view of Eshel.

Regarding claim 15, the Office Action states:

> As per claim 15, Kapoor and Eshel teach the method of claim 8, wherein prior to the receiving of (b) a first packet is received on the network interface device, the first packet being passed from the network interface device to the host computer, the host computer then passing to the network interface device an address of the destination memory (e.g. Kapoor, col. 10, lines 42-60).

Applicants respectfully assert that the combination of Kapoor and Eshel proposed in the Office Action does not teach the method of claim 8, wherein prior to the receiving of (b) a first packet is received on the network interface device, the first packet being passed from the network interface device to the host computer, the host computer then passing to the network interface device an address of the destination memory. The limitation of "issuing a read request to a network storage device, the read request passing through a network to the network storage device," contradicts the ability of the device proposed in the Office Action to "bypass the network and transport layers" as noted above. For at least these reasons, applicants respectfully assert that claim 15 is not obvious over Kapoor in view of Eshel.

The Office Action rejects claims 9 and 10 under 35 U.S.C. §103(a) as being unpatentable over Kapoor in view of Eshel as applied to claim 8 and further in view of Van Meter. Regarding claim 9, the Office Action states in part:

> As per claim 8, Kapoor and Eshel teach the method of claim 8, but fail to teach wherein the read request is in the form of a SCSI command,

wherein the SCSI command is attached to a header in accordance with an ISCSI protocol.

Applicants respectfully disagree with this rejection for all the reasons mentioned above with regard to claim 8, and further note that the Office Action does not assert, and Van Meter does not appear to teach, "wherein the SCSI command is attached to a header in accordance with an ISCSI protocol," in contrast to claim 9. For at least these reasons, applicants respectfully assert that claim 9 is not obvious over Kapoor in view of Eshel and further in view of Van Meter.

The Office Action rejects claims 16-21 under 35 U.S.C. §103(a) as being unpatentable over Kapoor in view of Eshel and in view of Van Meter and further in view of U.S. Patent No. 6,591,310 to Johnson (hereinafter "Johnson"). Regarding claim 16, the Office Action states in part:

> As per claim 16, Kapoor, Eshel and Van Meter teach the method of claim 8, wherein the read request is an SCSI read request, but fail to teach wherein the bus is a PCI bus.

Applicants respectfully disagree with this rejection for all the reasons mentioned above with regard to claim 8, and further note that the having "the network interface device being coupled to a host computer by a bus," "wherein the bus is a PCI bus," contradicts the ability of the device proposed in the Office Action to "bypass the network and transport layers" as noted above. For at least these reasons, applicants respectfully assert that claim 16 is not obvious over Kapoor in view of Eshel, Van Meter and Johnson.

Regarding claim 17, the Office Action states in part:

> As per claim 17, Kapoor, Eshel and Van Meter teach the method of claim 10, further comprising: sending a command status message from the network interface device to the host computer, the command status message being sent after said fast-path processing on the packet and prior to said receiving of the subsequent packet on the network interface device.

Applicants respectfully disagree with this rejection for all the reasons mentioned above with regard to claims 8 and 10, and further note that "sending a command status message from the network interface device to the host computer," contradicts the ability of the device proposed in the Office Action to "bypass the network and transport layers"

as noted above. For at least these reasons, applicants respectfully assert that claim 17 is not obvious over Kapoor in view of Eshel, Van Meter and Johnson.

Regarding claim 18, the Office Action states in part:

> As per claim 18, Kapoor, Eshel and Van Meter teach the method of claim 17, wherein the command status message includes an indication that the read request command was sent from the network interface device.

Applicants respectfully disagree with this rejection for all the reasons mentioned above with regard to claims 8, 10 and 17, and further note that the recitation "wherein the command status message includes an indication that the read request command was sent from the network interface device" contradicts the ability of the device proposed in the Office Action to "bypass the network and transport layers" as noted above. For at least these reasons, applicants respectfully assert that claim 18 is not obvious over Kapoor in view of Eshel, Van Meter and Johnson.

The Office Action rejects claims 23, 25, 26, 28, 29 and 32-36 under 35 U.S.C. §103(a) as being unpatentable over Kapoor in view of Van Meter and further in view of Johnson. Regarding claim 23, the Office Action states in part:

Regarding claim 23, the Office Action states in part:

> As per claim 23, Kapoor and Van Meter teach the computer of claim 22, but fail to teach wherein the network interface device includes a DMA controller, the DMA controller writing the data portion of the first portion into the destination memory of the host computer.

Applicants respectfully disagree with this rejection for all the reasons mentioned above with regard to claim 22, and further note that the recitation "wherein the network interface device includes a DMA controller, the DMA controller writing the data portion of the first portion into the destination memory of the host computer" contradicts the ability of the device proposed in the Office Action to "bypass the network and transport layers" as noted above. For at least these reasons, applicants respectfully assert that claim 23 is not obvious over Kapoor in view of Van Meter and Johnson.

Regarding claim 26, the Office Action states in part:

> As per claim 26, Kapoor and Van Meter teach the computer of claim 24, but fail to teach wherein an indication of where the destination memory is located on the host computer is passed from the host computer to the network interface device, the indication being passed to the network

interface device before the first portion of the response is received onto the network interface device.

Applicants respectfully disagree with this rejection for all the reasons mentioned above with regard to claim 22 and 24, and further note that the recitation "wherein an indication of where the destination memory is located on the host computer is passed from the host computer to the network interface device, the indication being passed to the network interface device before the first portion of the response is received onto the network interface device" contradicts the ability of the device proposed in the Office Action to "bypass the network and transport layers" as noted above. For at least these reasons, applicants respectfully assert that claim 26 is not obvious over Kapoor in view of Van Meter and Johnson.

Regarding claim 34, the Office Action states in part:

> As per claim 34, Kapoor and Van Meter teach the computer of claim 31, but fail to teach wherein an indication of where the destination memory is located on the host computer is passed from the host computer to the network interface device, the indication being passed to the network interface device before the first portion of the response is received onto the network interface device.

Applicants respectfully disagree with this rejection for all the reasons mentioned above with regard to claim 31, and further note that the recitation "wherein the means sends a command status message to the host computer before said slow-path processing starts, the command status message including an identifier, the identifier being indicative of the ISCSI read request command" contradicts the ability of the device proposed in the Office Action to "bypass the network and transport layers" as noted above. For at least these reasons, applicants respectfully assert that claim 34 is not obvious over Kapoor in view of Van Meter and Johnson.

Regarding claim 35, the Office Action states:

> As per claim 35, Kapoor and Van Meter teach a host that is adapted for sending an ISCSI solicited read request and for receiving a response in return, a host computer that has a protocol stack, the protocol stack having an ISCSI layer (e.g. Kapoor, col. 1, lines 41-54; col. 2, lines 33-36; col. 3, lines 10-19; Van Meter, Abstract, Page 71), the host being adapted for processing the response such that a data portion of the response is placed into a memory on the host computer without the host computer doing any network layer or transport layer processing on the

response (e.g. Kapoor, col. 2, lines 33-49; col. 6, lines 7-19; Van Meter, Abstract, Page 71).

Kapoor and Van Meter fail to teach a host bus adapter that is adapted for sending an ISCSI solicited read request, the host bus adapter being adapted for processing the response.

However, in a similar art, Johnson teaches the use of host bus adapters for controlling the transfer of data over SCSI buses (e.g. Johnson, col. 4, lines 18-30).

It would have been obvious to one skilled in the art at the time the invention was made to combine Johnson with Kapoor and Van Meter because of the advantages of using a host bus adapter to lessen the load on the CPU. A host bus adapter is designed for handling storage and retrieval tasks, which leaves the CPU more available to conduct other processing which cannot be performed by other devices and controllers. The use of a host bus adapter can therefore increase the speed and efficiency of the entire network since less processing needs to be handled on the already burdened CPU. This is advantageous in any computer network system.

Applicants respectfully disagree with the Office Action assertion that "Kapoor and Van Meter teach a host that is adapted for sending an ISCSI solicited read request and for receiving a response in return... the host being adapted for processing the response such that a data portion of the response is placed into a memory on the host computer without the host computer doing any network layer or transport layer processing on the response." On the contrary, Kapoor teaches to "***distinguish whether client and server processes are running on the same host machine*** and, ***if so, to bypass the network and transport layers*** using an alternate protocol sequence that exploits local interprocess communication (IPC) facilities." Kapoor, column 2, lines 37-43, emphasis added. Kapoor does not teach how to bypass the network and transport layers when a host bus adapter is coupled to a host computer, and the host bus adapter is adapted for sending an ISCSI solicited read request and for receiving a response in return. In this case, a host bus adapter that is adapted for processing the response such that a data portion of the response is placed into a memory on the host computer without the host computer doing any network layer or transport layer processing on the response is nonobvious over the cited references. For at least these reasons, applicants respectfully assert that claim 35 is not obvious over Kapoor in view of Van Meter and Johnson.

Regarding claim 36, the Office Action states:

As per claim 36, Kapoor and Van Meter teach a method, comprising:

sending an ISCSI solicited read request (e.g. Kapoor, col. 1, lines 41-54; col. 2, lines 33-36; col. 3, lines 10-19; Van Meter, Abstract, Page 71);

receiving a response to the ISCSI solicited read request (e.g. Kapoor, col. 1, lines 41-54; col. 2, lines 33-36; col. 3, lines 10-19; Van Meter, Abstract, Page 71); and

processing the response such that a data portion of the response is placed into a destination memory on the host computer without a protocol stack of the host computer doing any network layer processing on the response and without the host computer doing any transport layer processing on the response, the protocol stack of the host computer having an ISCSI layer (e.g. Kapoor, col. 2, lines 33-49; col. 6, lines 7-19; Van Meter, Abstract, Page 71).

Kapoor and Van Meter fail to teach the method comprising sending an ISCSI solicited read request from a host bus adapter; receiving onto the host bus adapter a response to the ISCSI solicited read request; and the host bus adapter processing the response.

However, in a similar art, Johnson teaches the use of host bus adapters for controlling the transfer of data over SCSI buses (e.g. Johnson, col. 4, lines 18-30).

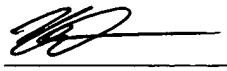
It would have been obvious to one skilled in the art at the time the invention was made to combine Johnson with Kapoor and Van Meter for similar reasons as stated above in regards to claim 35.

Applicants have amended claim 36 to recite that the host computer is coupled to the host bus adapter. Applicants respectfully assert that Kapoor, Van Meter and Johnson do not teach "the host bus adapter processing the response such that a data portion of the response is placed into a destination memory on a host computer that is coupled to the host bus adapter." On the contrary, Kapoor teaches to "***distinguish whether client and server processes are running on the same host machine*** and, ***if so, to bypass the network and transport layers*** using an alternate protocol sequence that exploits local interprocess communication (IPC) facilities." Kapoor, column 2, lines 37-43, emphasis added. Kapoor does not teach how to bypass the network and transport layers when a host bus adapter is coupled to a host computer. For at least this reasons, applicants respectfully assert that claim 36 is not obvious over Kapoor in view of Van Meter and Johnson.

III. Conclusion

Applicants have responded to each of the items in the Office Action, and believe that all of the pending claims are in condition for allowance. As such, applicants respectfully solicit a Notice of Allowance.

Respectfully submitted,



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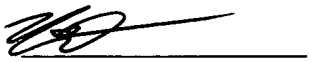
Date: 4-18-06 

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